

Evaluation of metabolic response, oxidative stress and nitric oxide to olive (*Olea europaea*) leaf extract in patients with essential hypertension

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Background and Aim: Hypertension is considered as the primary risk factor for cardiovascular diseases. Millions of people suffer from this disease that indicating the need for further research to control it better. In this project, effects of olive leaf extract (OLE) as an important traditional herbal medicine was evaluated on metabolic profiles, stress oxidative markers, cytokines and nitric oxide as a vasodilator.

Methods: This research was a parallel double-blind randomized controlled that was recorded in the Iranian registry of clinical trials (IRCT20170430033730N5). At first, subjects were matched one-by-one according to age, body mass index, gender, dosage and type of medications. Then these subjects were randomly allocated into two groups to receive either 500 mg/day OLE supplements (n = 30) or placebo (n = 30) for 12 weeks. 10 milliliter of blood sample was taken from participants after overnight fasting at study baseline and after 12 weeks intervention at the BU-Ali hospital laboratory affiliated to QUMS for measurement of the related markers.

Results: The results showed that fasting plasma glucose (P-value: 0.650), insulin (P-value: 0.412), uric acid (P-value: 0.245) and glutathione (P-value: 0.292) levels did not have significant changes between two studied groups. OLE treatment resulted in significant reduction in IL-6 (-5.9 ± 13.4 VS. 0.93 ± 11.5), IL8 (-8.2 ± 17.5 VS. 0.04 ± 12.8 , P-value: 0.043) and increase in nitric oxide (4.1 ± 9.6 VS. -1.6 ± 13.3), superoxide dismutase activity (4.5 ± 4.8 VS. -0.61 ± 4.4 , P-value: <0.001) levels compared to placebo received group.

Conclusion: It should be concluded that olive leaf extract should have useful effect in decreasing inflammation and increasing vasodilation and antioxidant quality in hypertensive patients.

Key Words: Olive leaf extract, Oxidative stress, Hypertension, Herbal medicine, Antioxidant

